

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) A data multiplexing device which multiplexes a plurality of data elements, each data element comprising at least a portion of a data program to be output at a receiving device, all of said corresponding data elements being output substantially simultaneously to form an output data program, and transmits said multiplexed data elements as a transport data stream, comprising:

scramble key generation means for generating a plurality of scramble keys, one corresponding to each of said plurality of corresponding, and substantially simultaneously output data elements, wherein each of said scramble keys is updated at predetermined intervals;

scramble means for selectively scrambling each of said plurality of substantially simultaneously output data elements by using said corresponding one of said scramble keys generated by said scramble key generation means to scramble a corresponding one of each of said plurality of substantially simultaneously output data elements; and

encoder controlling means for assigning ~~a different~~ higher or lower encoding bit ~~rate rates~~ to each of a plurality of encoders when encoding each of said plurality of data elements based on ~~the complexity of~~ bit rate generation generated from each of said plurality of data elements so that said encoder controlling means is capable of managing all different generated bit rates without sacrificing quality of said output data program.

2-3. (Canceled)

4. (Previously Presented) A data multiplexing device according to claim 1, wherein said scramble means scrambles each of said multiplexed data elements by using said scramble key corresponding to each of said data elements.

5. (Previously Presented) A data multiplexing device according to claim 4, wherein said scramble means searches for each scramble key for scrambling each of said data elements by using a correspondence table which shows packet identification codes for each of said data elements and their corresponding scramble keys.

6. (Previously Presented) A data multiplexing device according to claim 4, wherein said data multiplexing device comprises a first encryption means for enciphering said scramble key with a work key and multiplexes said enciphered scramble key with each of said data elements to transmit it.

7. (Currently Amended) A data multiplexing device which multiplexes a plurality of data elements, each data element comprising at least a portion of a data program to be output at a receiving device, all of said corresponding data elements being output substantially simultaneously to form an output data program, and transmits said multiplexed data elements as a transport data stream, comprising:

scramble key generation means for generating a plurality of scramble keys, one corresponding to each of said plurality of corresponding, and substantially simultaneously output data elements, wherein each of said scramble keys is updated at predetermined intervals;

scramble means for selectively scrambling each of said plurality of substantially simultaneously output data elements by using said corresponding one of said scramble keys generated by said scramble key generation means to scramble a corresponding one of each of said plurality of substantially simultaneously output data elements; and

encoder controlling means for assigning a different encoding bit rate to each of a plurality of encoders when encoding each of said plurality of data elements based on the complexity of each of said plurality of data elements;

wherein said scramble means scrambles each of said multiplexed data elements by using said scramble key corresponding to each of said data elements;

wherein said data multiplexing device comprises a first encryption means for enciphering said scramble key with a work key and multiplexes said enciphered scramble key with each of said data elements to transmit it; and

~~A data multiplexing device according to claim 6,~~

wherein said data multiplexing device comprises a second encryption means for enciphering said work key with a master key and multiplexes said enciphered work key with each of said data elements to transmit it.

8-119. (Canceled)

120. (Currently Amended) A data reception device for receiving a transport data stream including multiplexed data obtained by multiplexing a plurality of data elements, each data element comprising at least a portion of a data program to be output at a receiving device, all of said corresponding data elements being output substantially simultaneously to form an output data program, and said data reception device comprising:

scramble key extract means for extracting from said multiplexed data a plurality of enciphered scramble keys, one corresponding to each of said plurality of corresponding, and substantially simultaneously output data elements, wherein each of said enciphered scramble keys is updated at predetermined intervals;

descramble means for selectively descrambling said transport data stream including each of said plurality of substantially simultaneously output data elements by using a scramble key extracted by said scramble key extract means corresponding to each of said plurality of data elements to descramble each of said plurality of substantially simultaneously output data elements; and

encoder controlling means for assigning a ~~different~~ higher or lower encoding bit ~~rate~~ rates to each of a plurality of encoders when encoding each of said plurality of data elements based on ~~the complexity of~~ bit rate generation generated from each of said plurality of data elements so that said encoder controlling means is capable of managing all different generated bit rates without sacrificing quality of said output data program.

121. (Original) A data reception device according to claim 120, wherein said data reception device comprises a first decryption means for deciphering said enciphered scramble key extracted by said scramble key extract means by using a work key received along with said multiplexed data and descrambles said transport stream packet by using said scramble key deciphered by said first decryption means.

122. (Canceled)

123. (Previously Presented) A data multiplexing device according to claim 1, wherein said plurality of data elements constituting said program are video data, main audio data, sub audio data and private data.